

IN THE CLAIMS:

Please amend the Claims so as to read as follows:

1. (Currently Amended) A source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level corresponding to a data signal supplied thereto, said source driver comprising:
- a resistance-type voltage division circuit, which is an internal part of said source driver, for generating said plurality of gray scale voltages;
- wherein (i) said resistance-type voltage division circuit includes a plurality of series connected resistors connected between at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage for generating gray scale voltages between each adjacent pair thereof, (ii) the respective effective resistance values of the resistors making up adjacent pairs of said series connected resistors located on said positive-side of said resistance-type voltage division circuit define positive-side (high level) voltage resistance division ratios between them respectively, and (iii) the respective effective resistance values of the resistors making up adjacent pairs of said series connected resistors located on said negative-side of said resistance-type voltage division circuit define negative-side (low level) voltage resistance division ratios between them respectively, and

(iv) said positive-side (high level) effective voltage resistance division ratios and said negative-side (low level) effective voltage resistance division ratios of the resistance-type voltage division circuit are set so as to be asymmetrical with one another depending on level shift characteristics respectively associated with each said target gray scale level generated between each adjacent pair of said series connected resistors.

2. (Currently Amended) A source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level depending on a data signal supplied thereto, said source driver comprising:

a resistance-type voltage division circuit, which is an internal part of said source drive and includes a plurality of series connected resistors connected to at least one positive-side (high level) gray scale reference voltage and to at least one negative-side (low level) gray scale reference voltage, for generating said plurality of gray scale voltages , one between each adjacent pair of said series connected resistors;

wherein resistance division ratios between effective resistance values of the respective resistors making up each said pair of adjacent resistors of the resistance-type voltage division circuit are set to conform to the target gray scale display characteristics associated with said target gray scale levels.

3. (Currently Amended) A source line drive circuit, comprising:

a gray scale reference voltage generation circuit, and
a source driver for supplying a plurality of gray scale
voltages for driving each of a plurality of liquid
crystal pixels required to be AC-driven, respectively,
such that each said pixel displays a target gray scale
level corresponding to a data signal supplied thereto,
said source driver comprising:

a resistance-type voltage division circuit, which is an
internal part of said source driver, for generating
said plurality of gray scale voltages,

wherein (i) said resistance-type voltage division circuit includes a plurality of series connected resistors connected between at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage for generating gray scale voltages between each adjacent pair thereof, (ii) the respective effective resistance values of the resistors making up adjacent pairs of said series connected resistors located on said positive-side of said resistance-type voltage division circuit define positive-side (high level) voltage resistance division ratios between them respectively, (iii) the respective effective resistance values of the resistors making up adjacent pairs of said series connected resistors located on said negative-side of said resistance-type voltage division circuit define negative-side (low level) voltage resistance division ratios between them respectively, and

(iv) ~~wherein~~ said source driver is provided with a plurality of input terminals, to said plurality of input terminals are supplied gray scale reference voltages each having a different voltage level, and positive-side and negative-side gray scale voltages are generated based on the plurality of gray scale reference voltages.

4. (Currently Amended) A source line drive circuit, comprising:

a gray scale reference generation circuit, and
a source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level depending on a data signal supplied thereto, said source driver comprising:
a resistance-type voltage division circuit, which is an internal part of said source driver and includes a plurality of series connected resistors connected to at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage, for generating said plurality of gray scale voltages , one between each adjacent pair of resistors;

wherein resistance division ratios between effective resistance values of the respective resistors making up each said pair of adjacent resistors of the resistance-type voltage division circuit are set to conform to the target gray scale display characteristics associated with said target gray scale levels, and

wherein the source driver is provided with a plurality of input terminals, to said plurality of input terminals are supplied gray scale reference voltages each having a different voltage level, and positive-side and negative-side gray scale voltages are generated based on the plurality of gray scale reference voltages.

5. (Previously Presented) The source driver of claim 1, further comprising:
two input terminals, to one of said input terminals being supplied a positive-side highest-level reference voltage and to the other of said input terminals being provided a negative-side lowest-level reference voltage, and positive-side and negative-side gray scale voltages are generated based on said highest-level reference voltage and said lowest-level reference voltage.

6. (Previously Presented) The source driver of claim 2, further comprising:

two input terminals, to one of said input terminals being supplied a positive-side highest-level reference voltage, and to the other of said input terminals being provided a negative-side lowest-level reference voltage, and positive-side and negative-side gray scale voltages are generated based on said highest-level reference voltage and said lowest-level reference voltage.

7. (Currently Amended) An active-matrix liquid crystal display device comprising:

a plurality of pixels disposed in a matrix;

a plurality of data signal lines disposed corresponding to columns of the pixels;

a plurality of scanning signal lines disposed corresponding to rows of the pixels;

switching devices at the individual pixels; and

a source line drive circuit for driving the data signal lines, comprising,

a gray scale reference voltage generation circuit, and

a source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level corresponding to a data signal supplied thereto, said source driver comprising:

a resistance-type voltage division circuit, which is an internal part of said source driver and includes a plurality of series connected resistors connected to at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage, for generating said plurality of gray scale voltages, one between each adjacent pair of resistors;

wherein positive-side (high level) voltage resistance division ratios and negative-side (low level) voltage division ratios between effective resistance values of the respective resistors making up each said pair of adjacent resistors of the resistance-type voltage division circuit are set so as to be asymmetrical with one another depending on level shift characteristics respectively associated with each said target gray scale level; and

wherein the source driver is provided with a plurality of input terminals, to said plurality of input terminals are supplied gray scale reference voltages each having a different voltage level, and positive-side and negative-side gray scale voltages are generated based on the plurality of gray scale reference voltages.

8. (Currently Amended) An active-matrix liquid crystal display device comprising:
- a plurality of pixels disposed in a matrix;
 - a plurality of data signal lines disposed corresponding to columns of the pixels;
 - a plurality of scanning signal lines disposed corresponding to rows of the pixels;
 - switching devices at the individual pixels; and
 - a source line drive circuit for driving the data signal lines, comprising:
 - a gray scale reference generation circuit, and
 - a source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level depending on a data signal supplied thereto, said source driver comprising:
 - a resistance-type voltage division circuit, which is an internal part of said source driver and includes a plurality of series connected resistors connected to at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage, for generating said plurality of gray scale voltages, one between each adjacent pair of resistors;
- wherein resistance division ratios between effective resistance values of the respective resistors making up each said pair of adjacent resistors of the resistance-type voltage division circuit are set to conform to the target gray scale display characteristics associated with said target gray scale levels; and



wherein the source driver is provided with a plurality of input terminals, to said plurality of input terminals are supplied gray scale reference voltages each having a different voltage level, and positive-side and negative-side gray scale voltages are generated based on the plurality of gray scale reference voltages.

9. (Currently Amended) A source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level depending on a data signal supplied thereto, said source driver comprising:

a resistance-type voltage division circuit, which is an internal part of said source driver and includes a plurality of series connected resistors connected between at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage, for generating said plurality of gray scale voltages, one between each adjacent pair of said resistors; and

wherein resistance division ratios between effective resistance values of the respective resistors making up each said pair of adjacent resistors of the resistance-type voltage division circuit are set to conform to the target level shift characteristics and γ characteristics of said target gray scale levels.


10. (Currently Amended) A source line drive circuit, comprising:

a gray scale reference generation circuit, and

a source driver for supplying a plurality of gray scale voltages for driving each of a plurality of liquid crystal pixels required to be AC-driven, respectively, such that each said pixel displays a target gray scale level depending on a data signal supplied thereto, said source driver comprising:

a resistance-type voltage division circuit, which is an internal part of said source driver and includes a plurality of series connected resistors connected to at least one positive-side (high level) gray scale reference voltage and at least one negative-side (low level) gray scale reference voltage, for generating said plurality of gray scale voltages, one between each adjacent pair of resistors;

wherein resistance division ratios between effective resistance values of the respective resistors making up each said pair of adjacent resistors of the resistance-type voltage division circuit are set to conform to the target level shift characteristics and γ characteristics of said target gray scale levels; and wherein the source driver is provided with a plurality of input terminals, to said plurality of input terminals are supplied gray scale reference voltages each having a different voltage level, and positive-side and negative-side gray scale voltages are generated based on the plurality of gray scale reference voltages.

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11. (Previously Presented) The source driver of claim 9, further comprising:
two input terminals, to one of said input terminals being
supplied a positive-side highest-level reference voltage and to the
other of said input terminals being provided a negative-side
lowest-level reference voltage, and positive-side and negative-side
gray scale voltages are generated based on said highest-level
reference voltage and said lowest-level reference voltage.
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